Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

1. (currently amended) A magnetic resonance imaging apparatus including:

measurement control means for dividing a k space into a high repetitive-frequency measurement area containing an origin of the k space and measured at a high ~~frequency~~ repetitive-frequency and a plurality of low repetitive-frequency measurement areas not containing the origin and measured at a low repetitive-frequency, and obtaining k space data by repeating measurement of said high repetitive-frequency measurement area and measurement of at least one of said low repetitive-frequency measurement areas between said measurements of the high repetitive-frequency measurement area in a predetermined measurement order;

signal processing means for reconstructing an image by using the k space data; and

display means for displaying the resulting image;

wherein said signal processing means acquires a time phase evaluation value from said high repetitive-frequency measurement area, determines a time phase at which said time phase evaluation value reaches a predetermined threshold value or greater, and

said measurement control means rearranges the predetermined measurement order of some of said high repetitive-frequency measurement area and said at least one of said low repetitive-frequency measurement areas in such a manner that a measurement period of said high repetitive-frequency measurement area contains said time phase.

2. (currently amended) A magnetic resonance imaging apparatus according to claim 1,

wherein at least one low repetitive-frequency measurement area constituting [[said]] an image reconstruction set is a measurement area measured immediately before or immediately after said high repetitive-frequency measurement area constituting said image reconstruction set.

3. (currently amended) A magnetic resonance imaging apparatus according to claim 1, wherein selection of each of said measurement areas constituting [[said]] an image reconstruction set is made in such a manner as to contain the whole area of the k space.

Claim 4 (canceled).

5. (currently amended) A magnetic resonance imaging apparatus according to claim 1, wherein said signal processing means predicts a timing of said time phase from a time change of said time phase evaluation value, and said measurement control means controls the measurement ~~sequence~~ order of each of said high repetitive-frequency measurement areas on the basis of the timing predicted.

6. (currently amended) A magnetic resonance imaging apparatus according to claim 23, wherein said signal processing means determines said time phase after repetition of said measurements of said high repetitive-frequency measurement area.

7. (original) A magnetic resonance imaging apparatus according to claim 1, wherein said time phase evaluation value is a substantial peak value of the k space data in said high repetitive-frequency measurement area.

8. (original) A magnetic resonance imaging apparatus according to claim 1, wherein said time phase evaluation value is an addition value of data obtained after one-dimensional data in a read direction containing the origin of the k space in said high repetitive-frequency measurement area is subjected to Fourier transform.

9. (original) A magnetic resonance imaging apparatus according to claim 7, wherein said threshold value is at least 1.8 times a base line value of said time phase evaluation value.

10. (original) A magnetic resonance imaging apparatus according to claim 7, wherein said threshold value is at least 80% of a maximum value of said time phase evaluation value.

11. (currently amended) A magnetic resonance imaging apparatus according to claim 1, wherein said signal processing means repeats acquisition plural times to obtain a plurality of time phase evaluation value, and said display means displays in a time series [[said]] the plural time phase evaluation values.

12. (currently amended) A magnetic resonance imaging apparatus according to claim 11, wherein said display means displays a signal intensity change curve approximately representing time changes by connecting the plural time phase evaluation values displayed in the time series.

13. (original) A magnetic resonance imaging apparatus according to claim 11, wherein said display means has means for setting said threshold value.

14. (previously presented) A magnetic resonance imaging apparatus according to claim 23, wherein said display means has means for designating said time phase, and said signal processing means selects said high repetitive-frequency measurement area closest to said time phase designated.

15. (currently amended) A magnetic resonance imaging apparatus according to claim 11, wherein said display means displays a measurement ~~sequence~~ order of each of said measurement areas and its measurement time by using the same time axis as the display of said time phase evaluation value.

16. (previously presented) A magnetic resonance imaging apparatus according to claim 23, wherein said display means has means capable of selecting each of said measurement areas constituting said image reconstruction set.

17. (previously presented) A magnetic resonance imaging apparatus according to claim 23, wherein said display means differs display aspect of each of said selected measurement areas from display aspect of other measurement areas not selected.

18. (currently amended) A magnetic resonance imaging apparatus according to claim 1, wherein said k space data is data on which concentration information of a contrast medium injected to [[said]] a subject is reflected, said image contains a blood vessel image of said subject and said time phase is a time phase in which [[the]] an artery of the subject is

emphasized by said contrast agent.

19. (original) A magnetic resonance imaging apparatus according to claim 1, wherein said k space is a three-dimensional space that comprises a slice encode direction, a phase encode direction and a readout direction, and division of said k space is division by a plane parallel to said readout direction.

20. (currently amended) A magnetic resonance imaging apparatus according to claim 19, wherein said [[image]] signal processing means executes a projection processing on a two-dimensional plane after three-dimensional reconstruction.

21. (currently amended) A magnetic resonance imaging method comprising:

a division step of dividing a k space into a high repetitive-frequency measurement area containing an origin of said k space and measured at a high repetitive-frequency and a plurality of low ~~frequency~~ repetitive-frequency measurement areas not containing said origin and measured at a low repetitive-frequency;

a measurement control step of repeating measurement of said high repetitive-frequency measurement area and measurement of at least one of said low repetitive-frequency measurement areas between said measurements of the high repetitive-frequency measurement area in a predetermined measurement order of said ~~high-repetitive-frequency~~ high repetitive-frequency measurement area and conducting measurement of a plurality of k space data;

a step of conducting image reconstruction by using said k space data; and

a step of displaying the resulting image;

wherein said measurement control step includes a step of acquiring a time phase evaluation value from said high ~~frequency~~ repetitive-frequency measurement area, a step of determining a time phase in which said time phase evaluation value is a predetermined threshold value or greater, and

said measurement control means rearranges the predetermined measurement order of some of said measurement areas in such a manner that a measurement period of said high repetitive-frequency measurement area contains said time phase.

22. (currently amended) A magnetic resonance imaging apparatus including:

measurement control means for dividing a k space into a high repetitive-frequency measurement area containing an origin of the k space and measured at a high ~~frequency~~ repetitive-frequency and a plurality of low repetitive-frequency measurement areas not containing the origin and measured at a low repetitive-frequency, and obtaining k space data by repeating measurement of said high repetitive-frequency measurement area and measurement of each of said low repetitive-frequency measurement areas between said measurements of the high repetitive-frequency measurement area;

signal processing means for reconstructing an image by using the k space data; and

display means for displaying the resulting image; wherein

said signal processing means selects the high repetitive-frequency measurement area containing, or being time-wise close to, a desired time phase and at least one low repetitive-frequency measurement area measured time-wise close to said high repetitive-frequency measurement area, from the measured measurement areas, an order of the high repetitive-frequency measurement area having been rearranged from a predetermined measurement order in

such a manner that a measurement period of said high repetitive-frequency measurement area contains [[a]] the desired time phase, as an image reconstruction set and executes image reconstruction by using the k space data of said image reconstruction set.

23. (previously presented) The magnetic resonance imaging apparatus of claim 22, wherein said signal processing means acquires a time phase evaluation value from said high repetitive-frequency measurement area, determines said desired time phase at which said time phase evaluation value reaches a designated threshold value or greater.